UNIVERSITY OF GONDAR

COLLEGE OF MEDICINE AND HEALTH SCIENCES

SCHOOL OF MEDICINE

DEPARTMENT OF OPTOMETRY

VISION RELATED QUALITY OF LIFE AND ASSOCIATED FACTORS AMONG PATIENTS WITH VISUAL IMPAIRMENT AT GONDAR UNIVERSITY HOSPITAL TERTIARY EYE CARE AND TRAINING CENTER, NORTHWEST ETHIOPIA

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Acronyms

AOR	Adjusted Odds Ratio
COR	Crud Odds Ratio
HRQOL	Health Related Quality Of Life
NEI VFQ	National Eye Institute Visual Function Questionnaire
SPSS	Statistical Package for Social Sciences
SVI	Sever Visual Impairment
USA	United States of America
VA	Visual Acuity
VI	Visual Impairment
VRQOL	Vision Related Quality of Life

Abstract

Introduction: Vision related quality of life is a person's satisfaction with their visual ability and how their vision impacts on their daily life. Despite, the higher prevalence of visual impairment in Ethiopia, there is scarce evidence on vision related quality of life among people with visual impairment. Thus, evaluation of the influence of visual impairment on vision related quality of life is very valuable for better provision of services for individuals with impaired vision.

Objective: The purpose of this study was to assess vision related quality of life and associated factors among people with visually impairment at Gondar University hospital tertiary eye care and training center, Northwest Ethiopia.

Materials and methods: Institution-based cross-sectional study was conducted from April 24 – May 12, 2017 at Gondar University hospital tertiary eye care and training center among 484 patients with visual impairment. Participants were selected using consecutive sampling. Pre –tested, semi-structured national eye institute visual function questionnaire 25 was administered through interview by optometrists. Data was entered using Epi-info version 3.5.1 and analyzed with statistical Package for Social Sciences version 20. Binary logistic regression was used to determine factors associated with vision related quality of life. Variables with p - value < 0.05 in multivariable logistic regression were considered as statistically significant.

Results: A total of 484 study subjects participated with a response rate of 98.9%. The median age of the participants was 60 years with the interquartile range of 25years. Among study participants 238(49.2%) (95% CI: 44.2%-53.3%) had poor vision related quality of life. Variables such as age >75 years (AOR=1.87 (95% CI: 1.02-3.40)), rural residency (AOR=1.71 (95%CI: 1.13-2.60)), severe visual impairment/blindness (AOR=2.76 (95%CI: 1.80-4.23)), and history of visual impairment longer than 3 years (AOR=2.85 (95% CI: 1.61-5.04)) had statistically significant association with poor vision related quality of life.

Conclusion and recommendation: almost half of the participants had poor vision related quality of life. Establishing low vision and rehabilitation centers will improve the vision related quality of life but the effect of other visual functions like visual field and color vision on vision related quality of life need to be explored.

Keywords: Ethiopia, vision related quality of life, visual impairment

1. Introduction

1.1. Statement of the problem

Vision related quality of life(VRQOL) is defined as a person's satisfaction with their visual ability and how their vision impacts on their daily life (1). Since it is a broad concept it can be affected in a complex way by the person's physical health, psychological state, level of independence and social relationships (2).

Vision has a vital role for best performance in functional and social life. Eyesight/ vision accounts for about 80% of the function of all the five senses combined (3). Hence, visual impairment(VI) leads to restriction in all areas of life and in particular vision related quality of life by reducing activities associated with participation in society and religion, mobility, recreation, daily living and intense visual tasks (4, 5). In addition VI is associated with depression, frustration and anxiety not only because of the impairment but also because of the accompanying worry that the condition may worsen or the difficulty in adjusting to reduced activity (6).

Visual impairment is global public health problem which leads to a variety of public health, social, and economic problems, especially in developing countries where over 90% of world's individuals with visual impairment live. In Sub-Saharan Africa, the average prevalence of blindness is about 1.4% (7). Based on the presenting visual acuity the prevalence of VI in Ethiopia is 5.3% (8).

Despite the higher prevalence of VI in Ethiopia (8) there is scarce information on vision related quality of life among people with visual impairment. Evaluation of the influence of VI on daily activities, emotional state, social participation, and mobility is very valuable.However, there is limited information on vision related quality of life and associated factors in Ethiopia in general and the study area in particular. Therefore this study aims to asses vision related quality of life (VRQOL) and associated factors among people with VI.

Assessment of VRQOL provides a general overview of the impact of the VI on a patient's life from the patient's perspective.

1.2 Literature review

1.2.1 Vision related quality of life and visual impairment

The impact of visual impairment (VI) on vision related quality of life (VRQOL) was reported from different parts of the world to cause lower VRQOL (9, 12, 17, 22, 26, 29).

Community based cross sectional studies in Australia, Timor-Leste and India among population aged 40 years or older residents showed that patients with VI had lower VRQOL than those with normal vision (9-14).

School-based, cross-sectional study in Singapore among adolescents aged 11 to 18 years showed that adolescents with VI reported statistically lower VRQOL than those with normal vision (15).

Population based cross sectional study in six Europe countries(Norway, Estonia, United Kingdom, France, Italy, Greece) among adults 65 years and older stated that compared to those with the best vision ($\geq$6 / 6), VRQOL was lower for those with VI (16).

Cross-sectional studies in Spain and Vancouver's downtown eastside stated that the VRQOL showed significant deterioration due to VI(17, 18).Similarly study in Britain showed that 13.1% of those with VI had poor VRQOL (19).

Similar study in Netherlands among patients with low vision showed that patients with VI had poorer levels of functioning with respect to activities of daily living and emotional well-being (20).

Community based cross-sectional studies in United States of America (USA) among persons 40 years and older stated that VRQOL decreased for those with VI (22-24). Similarly study in Arizona showed the greatest decrements in the visual tasks of driving, general vision, and in role functions among those with monocular VI (21).

Clinic based cross sectional study in Germany among low vision patients found that 61.4% of participants had poor VRQOL (25).

An institution based cross sectional study in Iran among all individuals with VI aged 7 years and above indicated that VRQOL was significantly lower in participants with VI (26).

Population based cross sectional studies done in Nigeria among persons aged 40 years and older showed that VRQOL was lower for participants with VI and distant vision impairment had 0.32% impact on VRQOL (4, 27).

Hospital based cross sectional study in Ibadan, Nigeria among adults with ocular symptoms found that 21.5% of patients with visual impairment had poor VRQOL when compared to those having near normal vision (2.4%)(3). Similar study in Kenya showed that 83.5% of participants had poor VRQOL (28).

1.2.2 Factors associated with vision related quality of life among people with visual impairment

Different factors have been identified that affect vision related quality of life among people with visual impairment.

Population based cross sectional studies in Australia among persons 49 years or older stated that non-correctable unilateral (bilateral) visual impairment, increasing age, being women, depression as a co- morbidity were strongly associated factors with poor VRQOL(9-11). While similar study in Melbourne showed that non-correctable bilateral VI was associated with increasing dependency and poor emotional wellbeing and visual tasks. Whereas non-correctable unilateral VI was associated with increasing falling and dependency (29).

Another institution based cross sectional study in Australia among people living in three low-level residential care facilities showed that severe visual impairment(SVI) was independently associated with poorer VRQOL(30).

Studies in India showed that older age, lower educational status, unemployment, cataract, glaucoma, refractive error, and SVI were all associated with poor VRQOL (12, 31). Whereas study in Andhra Pradesh, India showed that being female, hypertension, major medical or physical illness, retinal disease and corneal disease were all associated with poor VRQOL (13).

A population-based comparative cross-sectional study in Timor-Leste among adults 40 years or above stated that older people those not married, illiterate, rural dwellers, cataract and refractive error had significantly poor VRQOL (14).

A cross sectional study in six Europe countries(Norway, Estonia, United Kingdom, France, Italy, Greece) among adults 65 years and older stated that poor VRQOL was strongly associated with worse VA and the presence of bilateral age related macular degeneration (16). Similar study in Spain also showed that SVI, cataract, diabetic retinopathy and age related macular degeneration associated with poor VRQOL (17).

Similarly studies in Britain, Germany and Vancouver's downtown east side showed that the severity of VI (18, 21),being unable to work owing to permanent illness, low socioeconomic status (unskilled manual occupation) and not being married(19) were associated with poor VRQOL.

Population based cross sectional studies in USA showed that having any age related eye disease (32), older age, unemployed status, lowest income level, cataract, glaucoma and diabetic retinopathy (23, 25), was significantly associated with low VRQOL but low-vision services were associated with improvement in VRQOL (33).

An institution based cross sectional study in Iran among all individuals with VI aged 7 years and above indicated that being single, women, unemployed and having low literacy level significantly associated with poor VRQOL (26).

Studies in Kenya and Nigeria showed that poor VRQOL was associated with worse VA, longer duration of disease, old age, unemployment/manual job status, rural residence, women, illiteracy, and unmarried participants (3, 27, 28).

1.2.3 Conceptual frame work

This conceptual frame work was adopted based on the objectives of this study as well as from literature review.

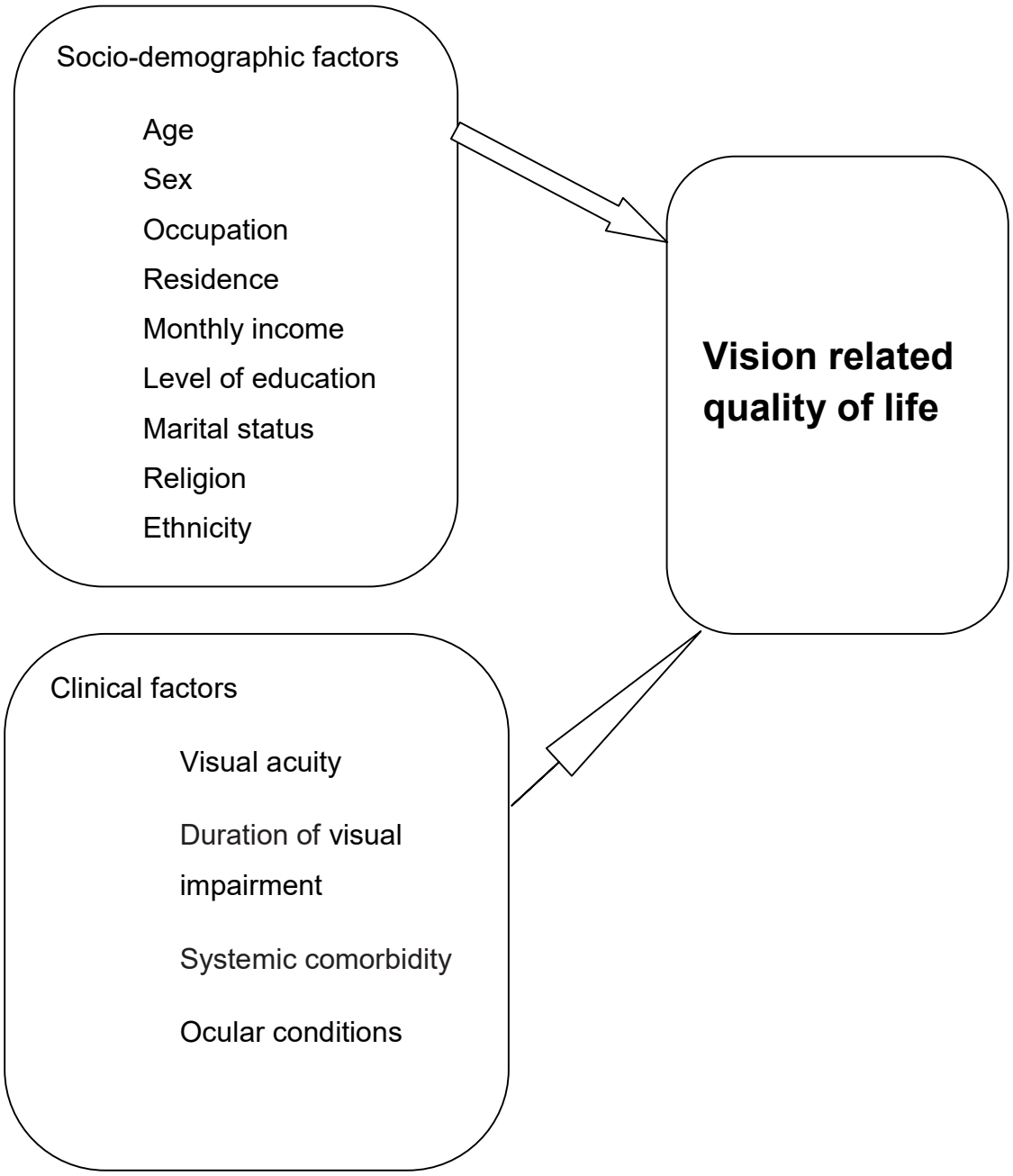

Figure 1: Conceptual framework showing variables on vision related quality of life

1.3 Justification of the study

Recent studies have shown that visual impairment affects a person's VRQOL by limiting physical and emotional well-being, social interactions and independence. Thus, evaluation of the influence of visual impairment on daily activities, emotional state, social participation, and mobility is very valuable for better provision of services for individuals with impaired vision(26).

Despite the higher prevalence of VI in Ethiopia there is scarce information on VRQOL among people with VI. Therefore, this study can generate necessary baseline data for further similar studies allowing detailed description of unique factors that facilitate or inhibit the vision related quality of life among people with VI.

Therefore, the results of this study can be used to support and guide for management policies to organize rehabilitation programs to alleviate factors affecting VRQOL among patients with visually impairment.

This study will also provide specific areas where eye care interventions and rehabilitation programs should be targeted since most individuals along the spectrum of VI should be targeted including those with mild/moderate VI(7).

2. Objectives

2.1 General objective

- To assess vision related quality of life and associated factors among patients with visual impairment at Gondar University hospital tertiary eye care and training center, Northwest Ethiopia 2017

2.2 Specific objectives

- To determine vision related quality of life of patients with visual impairment
- To identify factors associated with vision related quality of life of patients with visual impairment

3. Materials and methods

3.1 Study design and period

Institution based cross sectional study was conducted from April 24 to May 12, 2017.

3.2 Study area

The study was conducted at Gondar University hospital tertiary eye care and training center. This eye care center provides a comprehensive clinical and community eye health services for eight zones and serves as a major referral center for 14 million people living in North West Ethiopia (26). It is the only tertiary eye care center for population in the Northwest Ethiopia. It has five special clinics (anterior segment, pediatric and strabismus, vitro-retina, glaucoma and refraction).

3.3 Source/Study population

All adults with VI at Gondar University hospital tertiary eye care and training center who came during the study period

3.3.1 Inclusion criteria

People with visual impairment who came to Gondar University hospital tertiary eye care and training center during study period aged 18 years and above

3.4. Sample size determination and sampling procedures

3.4.1 Sample size determination

Sample size was calculated using Open Epi computer software with single population proportion formula considering total population of 1694 which is total number of patients seen monthly, p=50% since there is no data on proportion of poor quality of life among patients with visual impairment and margin of

error=4%.The generated sample size found to be n= 444. Considering 10% for non-response rate total sample size was 489.

3.4.2 Sampling technique

All consecutive patients (both new and patients on follow up) who came to Gondar University hospital tertiary eye care and training center during study period aged 18 years and above were included for the study.

3.5. Study variables

3.5.1. Dependent variable

Vision related quality of life

3.5.2 Independent variables

- Socio-demographic factors: age, sex, level of education, occupation, marital status, residence, monthly income, religion and ethnicity
- Clinical factors: level of visual impairment, duration of visual impairment, systemic co-morbidity and ocular conditions

3.6. Operational definitions

The World Health Organization (WHO) classification of vision was used.

- **Visual impairment:** presenting distance visual acuity of less than 6/18 on the better eye using a Snellen chart placed 6 meters away from the participant.
- **Moderate visual impairment:** presenting distance visual acuity of less than 6/18 to 6/60 on the better eye using a Snellen chart placed 6 meters away from the participant.
- **Sever visual impairment:** presenting distance visual acuity of less than 6/60 to 3/60.
- **Blind:** presenting distance visual acuity of less than 3/60 to no light perception.

- **Poor vision related quality of life:** individuals who scored less than the overall mean in the national eye institute visual function questionnaire 25 (NEI VFQ 25) score are considered to have poor vision related quality of life.
- **Good vision related quality of life:** individuals who scored the overall mean and above in the national eye institute visual function questionnaire 25 score are considered to have good vision related quality of life.

3.7. Data collection tools and procedures

Data were collected by using a pre tested, semi-structured questionnaire consisting of questions for socio-demographic factors; vision related quality of life of people with visual impairment and for associated factors of poor VRQOL. Face to face interview to estimate VRQOL and patient's medical chart review to determine clinical factors was employed by trained optometrists.

National eye institute visual functioning questionnaire – 25 (NEI VFQ-25)was used to determine VRQOL which contains 25 items under subscales of general health (1 item), general vision (1item), near vision (3 items), distance vision (3 items), driving (2 items), peripheral vision (1 item), color vision (1 item), ocular pain(2 items), role limitation (2 items), dependency (3 items), social function (2 items) and mental health (4 items) (34, 35).The item responses was adjusted for directionality (high scores reflect participants with good vision/health), and was rated on a scale of 0 to 100.Subscale scores was created by averaging their adjusted item responses. Participants' responses were excluded from specific items if they had stopped the activity for reasons other than poor eyesight. The items reliability was checked by calculating Cronbach's alpha value (0.85).

3.8. Data quality assurance

All questions were translated into the local language Amharic and then translated back into English by language experts. Pretest was done on 5 % (23) of the sample for common understanding at Debark Referral Hospital.

One day training was given for data collectors and supervisors on the questionnaire to be used, the purpose of the study and how to approach respondents and obtain consent.

Six data collectors (optometrists) were assigned to interview participants after getting informed consent orally and to review the chart. The principal investigator and supervisor (senior optometrist) was engaged to strictly supervise the data collection process and ensure completeness and consistency during and after the data collection process.

3.9. Data processing and analysis

The coded data was checked, cleaned and entered into Epi Info 3.5.1 and exported into SPSS version 20 for analysis. Descriptive statistics such as proportion, frequency, ratios, summary statistics (mean, standard deviation and range) were calculated. Binary logistic regression was done to determine factors associated with poor VRQOL. All variables were entered to multivariable logistic regression for analysis. Model fitness was checked through Hosmer and Lemeshow model fitness. Variables with p-value < 0.05 at multivariable regression were considered as statistically significant. Adjusted odds ratio (AOR) with 95% confidence interval was used to assess the strength of the association.

4. Ethical considerations

Ethical clearance was obtained from University of Gondar, College of Medicine and health sciences school of medicine ethical review committee. Oral informed consent was obtained from participants. They were allowed to participate, refuse or withdraw the study at any time they want. Confidentiality of the information obtained was assured by coding and locking the data. Participants got information on the impact of VI on vision related quality of life.

5. Results

5.1. Socio-demographic characteristics of study participants

A total of 484 people with visual impairment were participated with a response rate of 98.9%. Among study participants 283 (58.5%) were males .The median age of the participants was 60 years with the interquartile range of 25 years. One hundred and forty six (30.2%) of the study participants were between 60 and 75 years of age. More than half of participants 297 (61.4%) were rural residents. Among study participants 196(40.5%) were farmers and 139(28.7%) had monthly income <400 Ethiopian birr (**Table 1**).

Table 1: Socio-demographic characteristics of study participants at Gondar University Hospital Tertiary Eye Care and Training Center, Ethiopia 2017 (n = 484)

Variables	Frequency	Percentage
Age(years)		
18-45	119	24.59
45-60	120	24.79
60-75	146	30.17
75-96	99	20.45
Sex		
Male	283	58.47
Female	201	41.53
Residence		
Rural	297	61.36
Urban	187	38.64
Educational level		
Unable to read and write	275	56.82
Only able to read and write	93	19.21
Primary education	56	11.57
Secondary education	27	5.58
College/University	33	6.82
Marital Status		
Married	330	68.18
Single	54	11.16
Divorced	36	7.44
Widowed	64	13.22
Religion		
Christian	449	92.77
Muslim	35	7.23

Occupation		
Farmer	196	40.50
Student	32	6.61
House wife	142	29.34
Merchant	33	6.81
Daily labor	32	6.61
Government Employee	29	6.00
Retired	20	4.13
Monthly income		
<400	139	28.72
400-600	104	21.49
600-1500	120	24.79
>1500	121	25.00
Ethnicity		
Amhara	420	86.78
Tigrie	30	6.20
Kimant	34	7.02

5.2. Clinical characteristics of study participants

One hundred seventy five 175(36.2%) of the participants had severe VI/blindness and 202(41.7%) of participants had history of VI for more than three years. Ninety seven (20%) of study participants had systemic comorbidities (**Table2**).

Table 2: Clinical characteristics of study participants at Gondar University hospital tertiary eye care and teaching center, Ethiopia 2017 (n= 484)

Variables	Frequency	Percentage
Visual impairment		
Moderate	309	63.84
Sever/blind	175	36.16
Duration of Visual Impairment		
<1 year	89	18.39
1-3 years	193	39.88
>3 years	202	41.73
Systemic comorbidities		
No	387	79.96
Yes	97	20.04

Cataract was the most common ocular condition among study participants 188(38.8%).

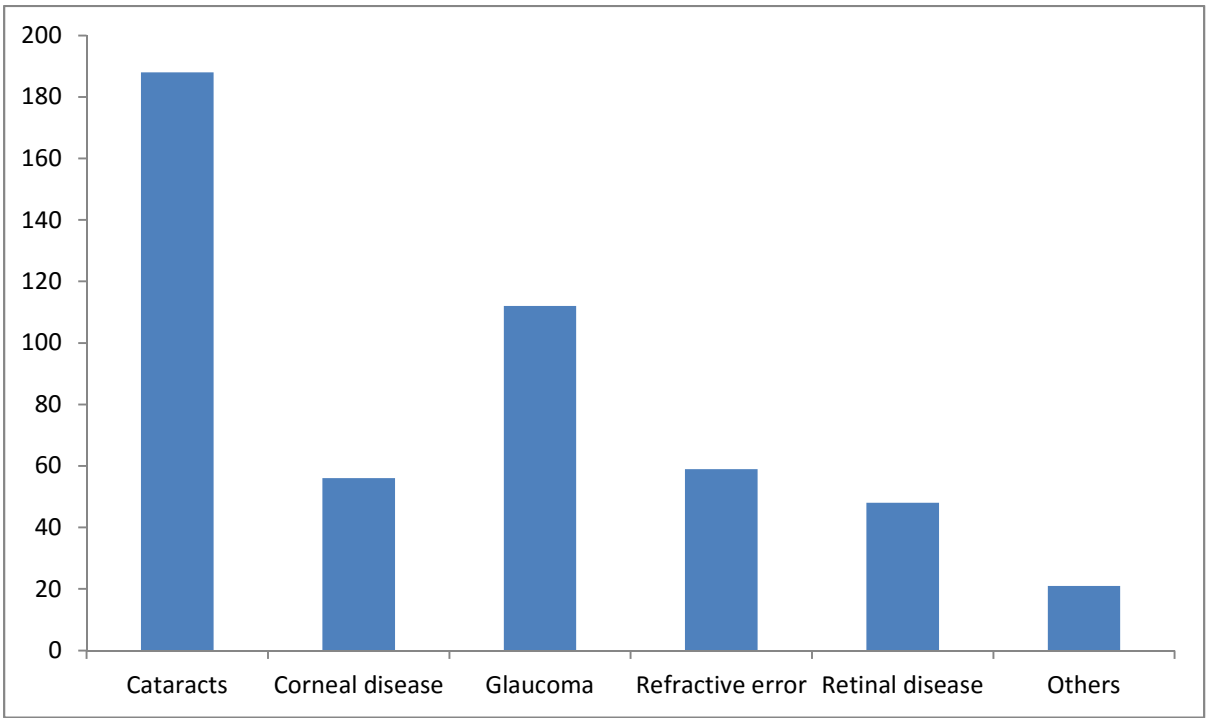

Figure 2: Ocular conditions of study participants at Gondar University hospital tertiary eye care and teaching center, Ethiopia 2017(n=484)

Other ocular conditions include phthisis bulbi and uveitis.

5.3. Vision related quality of life of study participants

In this study 238(49.2%) (95% CI: 44.2%-53.3%) of patients with visual impairment had poor over all vision related quality of life. (Figure 3)

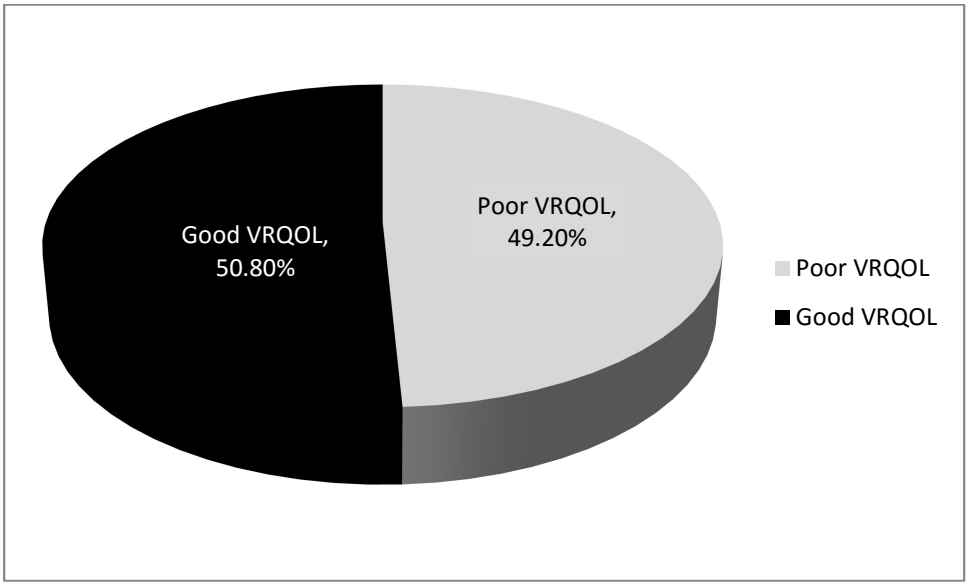

Figure 3: Vision related quality of life of study participants at Gondar University hospital tertiary eye care and teaching center, Ethiopia 2017 (n=484)

Among the 12 subscales general health (65.7%) was the most affected subscale and least affected was color vision (41.9%) (**Table 3**).

Table 3: NEI VFQ-25 scores across subscales among study participants at Gondar University hospital tertiary eye care and training center, Ethiopia, 2017 (n=484)

Variables	Mean ±SD	Poor VRQOL Frequency (%)	Good VRQOL Frequency (%)
General health	(50.46±30.83)	318(65.7)	166(34.3)
General vision	(34.74±20.88)	241(49.8)	243(50.2)
Ocular pain	(67.08±29.01)	227(46.9)	257(53.1)
Near activities	(53.17±32.58)	273(56.4)	211(43.6)
Distance activities	(52.56±24.87)	266(53.7)	224(46.3)
Social functioning	(69.44±31.73)	211(43.6)	273(56.4)
Mental health	(55.10±30.78)	222(45.9)	262(54.1)
Role difficulties	(43.35±37.50)	260(53.7)	224(46.3)
Dependency	(57.88±33.84)	211(43.6)	273(56.4)
Color vision	(75.57±33.17)	203(41.9)	281(58.1)
Peripheral vision	(59.21±34.66)	254(52.5)	230(47.5)
Over all VRQOL	(56.90±22.18)	238(49.2)	246(50.8)

5.4. Factors associated with vision related quality of life

The results of multivariable logistic regression analysis showed that poor vision related quality of life was significantly associated with age, residence, level of VI and duration of visual impairment.

In this study participants aged greater than 75 years were 1.87 (AOR=1.87 (95% CI: 1.02-3.40)), times more likely to have poor vision related quality of life compared to those who were less than 45years old.

Similarly study participants from rural resident were 1.71 (AOR=1.71 (95%CI: 1.13-2.60)) times more likely to have poor vision related quality of life compared with urban resident participants.

The present study shows patients with severe visual impairment/blindness were 2.76 (AOR=2.76 (95%CI: 1.80-4.23)) times more likely to have poor vision related quality of life compared to those who had moderate visual impairment.

Moreover participants with history of visual impairment for more than 3 years were 2.85 (AOR=2.85 (95% CI: 1.61-5.04)) times more likely to have poor vision related quality of life compared to those who had history of visual impairment for less than 1year **(Table 4).**

Table 4: Factors associated with poor vision related quality of life among study participant at Gondar University hospital tertiary eye care and training center, Ethiopia, 2017 (n= 484)

Variable	Vision related quality of life		COR (95%CI)	AOR (95%CI)
	Poor	Good		
Age(years)				
18-45	51	68	1.00	1.00
45-60	42	78	0.72(0.43-1.21)	0.71(0.40-1.24)
60-75	80	66	1.62(0.99-2.63)	1.19(0.70-2.04)
75-96	65	34	2.55(1.47-4.42)	1.87(1.02-3.40)*
Sex				
Male	143	140	1.00	
Female	95	106	0.88(0.61-1.26)	
Residence				
Rural	163	134	1.82(1.25-2.63)	1.71(1.13-2.60)*
Urban	75	112	1.00	1.00
Educational level				
Unable to read and write	149	126	1.61(0.77-3.33)	
Only able to read and write	44	49	1.22(0.55-2.72)	
Primary education	19	37	0.70(0.29-1.69)	
Secondary education	12	15	1.09(0.39-3.03)	
College/university	14	19	1.00	
Marital status				
Married	170	160	1.00	
Single	25	29	0.81(0.46-1.45)	
Divorced	16	20	0.75(0.38-1.50)	
Widowed	27	37	0.69(0.40-1.18)	
Occupation				
Farmer	108	88	1.00	
Student	10	22	0.37(0.17-0.82)	
House wife	75	67	0.91(0.59-1.41)	
Merchant	9	24	0.31(0.14-0.69)	

Daily labor	18	14	1.05(0.49-2.22)	
Government employee	11	18	0.50(0.22-1.11)	
Retired	7	13	0.44(0.17-1.15)	
Monthly income				
<400	82	57	2.27(1.38-3.73)	
400-600	49	55	1.40(0.83-2.39)	
600-1500	60	60	1.57(0.94-2.63)	
>1500	47	74	1.00	
Visual impairment				
Moderate	114	195	1.00	1.00
Sever/blind	124	51	4.16(2.79-6.20)	2.76(1.80-4.23)**
Duration of visual impairment				
<1year	31	58	1.00	1.00
1-3years	73	120	1.14(0.67-1.92)	1.02(0.58-1.78)
>3years	134	68	3.69(2.18-6.23)	2.85(1.61-5.04)**
Ocular conditions				
Cataract	108	80	1.00	
Corneal disease	30	26	0.86(0.47-1.56)	
Glaucoma	53	59	0.67(0.42-1.07)	
Refractive error	19	40	0.35(0.19-0.65)	
Retinal disease	20	28	0.53(0.28-1.15)	
Others	8	13	0.46(0.18-1.15)	
Systemic comorbidities				
No	190	197	1.00	
Yes	48	49	1.02(0.65-1.59)	

** P value <0.05 ** P value <0.001*

6. Discussion

This study has assessed vision related quality of life among patients with visual impairment at Gondar University hospital tertiary eye care and training center.

Overall the proportion of poor vision related quality of life in this study was 49.2% (95% CI: 44.2%-53.3%). This result is higher than studies done in Ibadan, Nigeria (21.5%) and Britain (13.1%) (3, 19). This might be due to their small sample size of patients with visual impairment. Additional reasons for this variation might be differences in lifestyles, economic status, health care system and cultural value.

However, the result of this study is lower than other studies in Philadelphia, USA (62%) and Kenya (83.5%)(21, 24). This might be due to the instrument they used to asses VRQOL which was time trade off utility measure. Time trade off provides a measure of the vision related quality of life associated with a health state. That is patients were asked the maximum number of years they would be willing to give up if they could have normal vision in both eyes for the remainder of their life. Whereas the instrument used in this study measures mainly vision related quality of life.

In this study patients with severe visual impairment/blindness were 2.76 (AOR=2.76 (95%CI: 1.80-4.23)) times more likely to have poor vision related quality of life compared to those who had moderate visual impairment. This result agrees with other studies (10, 14, 21, 25, 27, 28, 31, 36). This might be due to that as the visual acuity decreases daily activities might be compromised thereby affecting social and economic status, increasing dependency and poor emotional wellbeing leading to have poor vision related quality of life (37).

The result of this study also showed that participants aged greater than 75 years were 1.87 (AOR=1.87 (95% CI: 1.02-3.40)) times more likely to have poor vision related quality of life compared to those who were less than 45 years old. This might be result from most older people consider that visual loss is to be expected in later life and think that nothing can be done to improve the situation. This result is consistent with other studies (3, 12, 14, 23, 27). This might be due to that various

aged-related ocular disorders result in decline in visual function, and thus have significant effects on patients' vision related quality of life (32, 38).

The present study found that rural residents were 1.71 (AOR=1.71 (95%CI: 1.13-2.60)) times more likely to have poor vision related quality of life compared to urban residents. This result agrees with studies done in Nigeria (27) and Timor-Leste (14).This might be due to patients who live in rural areas may not seek medical attention for eye problems for early detection and treatment, seeking care very late after the disease gets severe stage (39, 40). Moreover, rural patients may have less monthly income, for example, in this study, 30% of rural patients have less than 400 ETB monthly income.

Study participants with history of visual impairment for more than 3 years were 2.85 (AOR=2.85 (95% CI: 1.61-5.04)) times more likely to have poor vision related quality of life compared to those who had visual impairment for less than 1 year. This finding is in agreement with study in Kenya (28) but different from result of study in Philadelphia, USA (41). The discrepancy observed here might be due to that visually impaired persons in Philadelphia may have sufficient resources to adapt to their visual impairment over time using low vision devices thus reducing the impact of visual impairment on vision related quality of life (42).

7. Limitations of the study

This study has some limitations. Firstly, since the study design was cross-sectional there was lack of assessment of VRQOL over time. Secondly, the VI classification in this study was based on only presenting distance VA other aspects of visual functioning (e.g., contrast sensitivity, visual field, color vision and stereo-acuity) were not assessed and may lead inconsistent results with other study findings and thirdly duration of visual impairment was based on self-report and exposed to recall bias.

8. Conclusion

Almost half of patients with visual impairment had poor vision related quality of life. Severe visual impairment/blindness, long duration of visual impairment, older age and rural residency had statistically significant association with poor vision related quality of life.

9. Recommendations

It is better if national and regional ministry of health

Encourage public promotions to have regular eye check-up for early detection and treatment of sight threatening conditions

It is recommended if university of Gondar tertiary eye care and training center

Organize and improve low vision rehabilitation services to improve patients vision related quality of life.

It is better if researchers

Explore the effects of other measures of visual functions like visual field, contrast sensitivity, color vision and stereo-acuity.

Do longitudinal study to show the change in the vision related quality of life or vision function overtime.

Explore more factors to improve vision related quality of life of patients with visual impairment through qualitative research design.

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11. Annexes

Annex 1 Information Sheet

Title of the research project –vision related quality of life and associated factors among patients with visual impairment at Gondar University hospital tertiary eye care and training center, Northwest Ethiopia

Name of principal investigator –Betelhem Temesgen

Name of organization - University of Gondar, College of Medicine and Health Sciences, School of medicine and Department of Optometry

Name of sponsor - University of Gondar

Introduction

This information sheet and consent form is prepared with the aim studying vision related quality of life among patients with visual impairment and associated factors at Gondar University hospital tertiary eye care and training center, Northwest Ethiopia, 2017. The research group includes the principal investigator, six trained data collectors, one supervisor, and two advisors from University of Gondar.

Purpose of the research project

The main purpose this study is to assess vision related quality of life among patients with visual impairment and associated factors at Gondar University hospital tertiary eye care and training center, Northwest Ethiopia, 2017.

Procedures

The study involves all adult visual impaired patients who came to Gondar University hospital tertiary eye care and training center from April 24 to May 12, 2017. You are one of the study participants and we kindly invite you to take part in our project. If you are willing to participate, we are so happy and we need you to clearly understand the aim of this study and show your agreement. Finally you are kindly requested to give your genuine response in the interview.

Benefits, Risks and/or Discomfort

By participating in this research project you may feel some discomfort in wasting a maximum of 20 minutes of your time. However, your participation is definitely important to assess the vision related quality of life among patients with visual impairment and associated factors which help us to design the appropriate strategy options.

There is no risk by participating in this research.

Incentives/Payments for Participating

You will not be provided any incentives or payments to take part in this research project.

Confidentiality

We will not write your name and the information collected from you will be kept confidential and stored in a file, by assigning a code number to it. Hence, no report of the study ever identifies you.

Right to Refusal or Withdraw

You have the full right to refuse from participating in this research and to withdraw at any time you wish.

Person to contact

This research project was reviewed and approved by the ethical committee of the University of Gondar. If you have any question you can contact any of the following individuals and you may ask at any time you want.

Name: Betelhem Temesgen Name: Destaye Shiferaw Name: Dereje Hayilu
Tele: 0985066685 Tele: 0918032216 Tele: 0910046930

Annex 2 English version of informed consent

Consent form for interview on vision related quality of life among visually impaired patients

Dear sir/madam

You are participating in this study undertaken to assess vision related quality of life among visually impaired patients and associated factors. Visual impairment has a great impact on person's quality of life in many dimensions. So knowing the magnitude of its effect on quality of life and its associated factors is important to take appropriate actions. The data will be collected for research and program planning purposes by University of Gondar, college of Medicine and Health Science Department of Optometry.

With your permission, we would like to conduct interview with you.

You do not have to agree to do these things if you don't want to do**.** You can withdraw your consent at any time. All information that we collect will be confidential and no identifiable information will be released.

Annex 3 Amharic version of informed consent

የ ፈ ቃ ድ ማ ጠ የ ቂ ያ ቅ ፅ

የ ተ ከ በ ሩ አ ቶ/ወ ይ ዘ ሮ/ወ ይ ዘ ሪ ት

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የ ጥ ና ቱ ባ ለ ቤ ት ስ ም ---------- ፊ ር ማ ---------- ቀ ን ----------

Annex 4 English version of questionnaire

Pretested Structured questionnaire for vision related quality of life among visually impaired patients and associated factors at Gondar University hospital tertiary eye care and training center, Northwest Ethiopia, 2017

Introduction

Good morning/afternoon, my name is ---------- I am working for University of Gondar. I am a member of a research group working in University of Gondar. The research is about quality of life among visually impaired patients and associated factors at Gondar University hospital tertiary eye care and training center. Your truth full answers for all of our questions are important to know the level of vision related quality of life of visually impaired patients and its associated factors. Your answers will be confidential and secret. If you decide that, you do not want to participate in the study now or at any time in the future, it is your right. But we appreciate you if you try to participate for 20 minutes to complete the questionnaire. Thank you. Next, I will read a consent, which assures your interest to participate.

Do I have your permission to continue?

If yes thank you and continue ----------

If no, thank you and go to next study subject ----------

Data collector

Name ---------- signature ---------- date ----------

Checked by supervisor

Name ---------- signature---------- date----------

Part: I

Socio-demographic characteristics

S.no	Questions	Response
101	Age in year	----------
102	Sex	1. Male 2. Female
103	Residence	1. Urban 2. Rural
104	Marital status	1. Single 2. Married 3. Divorced 4. Widowed
105	Ethnicity	1. Amhara 2.Oromo 3. Tigre 4. Others (specify)----------
106	Religion	1. Christian 2. Muslim
107	Educational status	1.unable to read and write 2. Read and write only 3.1-8th grade 4. 9-12th grade 5. college/university
108	Occupation	1. Student 2. House wife 3. Merchant 4. Daily labor 5. Farmer 6. Government employee 7. Retired 8.Others (specify)----------
109	Monthly income in birr	

Part II

Clinical characteristics

201	Presenting distance visual	OD _____	OS ----------
202	Duration of VI in months	OD _____	OS ----------
203	Ocular conditions	OD1-Cataract 2-Corneal disease 3-Glaucoma 4-Refractive error 5-Retinal diseases 6- other (specify) ----------	OS 1-Cataract 2-Corneal disease 3-Glaucoma 4-Refractive error 5-Retinal diseases 6-other (specify) ----------
205	Systemic comorbidities	1. Yes 2. No	

Part III

National Eye Institute Visual Functioning Questionnaire – 25

PART 1 - GENERAL HEALTH AND VISION

1. In general, would you say your overall health is:
    1. Excellent
    2. Very Good
    3. Good
    4. Fair
    5. Poor
2. At the present time, would you say your eyesight using both eyes (with glasses if you wear them) is
    1. Excellent
    2. Good
    3. Fair
    4. Poor
    5. Very Poor
    6. Completely Blind
3. How much of the time do you worry about your eyesight?
    1. None of the time
    2. A little of the time
    3. Some of the time
    4. Most of the time
    5. All of the time
4. How much pain or discomfort have you had in and around your eyes (for example, burning, itching, or aching)? Would you say it is:
    1. None
    2. Mild
    3. Moderate
    4. Severe
    5. Very severe

PART 2 - DIFFICULTY WITH ACTIVITIES

The next questions are about how much difficulty, if any, you have doing certain activities wearing your glasses if you use them for that activity.

5. How much difficulty do you have reading ordinary print in newspapers? Would you say you have:
    1. No difficulty at all
    2. A little difficulty
    3. Moderate difficulty
    4. Extreme difficulty
    5. Stopped doing this because of your eyesight
    6. Stopped doing this for other reasons or not interested in
6. How much difficulty do you have doing work or hobbies that require you to see well up close, such as cooking, sewing, fixing things around the house, or using hand tools? Would you say:
    1. No difficulty at all
    2. A little difficulty
    3. Moderate difficulty
    4. Extreme difficulty
    5. Stopped doing this because of your eyesight
    6. Stopped doing this for other reasons/ not interested in doing this
7. Because of your eyesight, how much difficulty do you have finding something on a crowded shelf?
    1. No difficulty at all
    2. A little difficulty
    3. Moderate difficulty
    4. Extreme difficulty
    5. Stopped doing this because of your eyesight
    6. Stopped doing this for other reasons/ not interested in doing this
8. Because of your eyesight, how much difficulty do you have recognizing people you know from across a room?
    1. No difficulty at all

2. A little difficulty
3. Moderate difficulty
4. Extreme difficulty
5. Stopped doing this because of your eyesight
6. Stopped doing this for other reasons/ not interested in doing this

9. Because of your eyesight, how much difficulty do you have going down steps, stairs, or curbs in dim light or at night?
    1. No difficulty at all
    2. A little difficulty
    3. Moderate difficulty
    4. Extreme difficulty
    5. Stopped doing this because of your eyesight
    6. Stopped doing this for other reasons/ not interested in doing this
10. Because of your eyesight, how much difficulty do you have noticing objects off to the side while you are walking along?
    1. No difficulty at all
    2. A little difficulty
    3. Moderate difficulty
    4. Extreme difficulty
    5. Stopped doing this because of your eyesight
    6. Stopped doing this for other reasons/ not interested in doing this
11. Because of your eyesight, how much difficulty do you have seeing how people react to things you say?
    1. No difficulty at all
    2. A little difficulty
    3. Moderate difficulty
    4. Extreme difficulty
    5. Stopped doing this because of your eyesight
    6. Stopped doing this for other reasons/ not interested in doing this
12. Because of your eyesight, how much difficulty do you have picking out and matching your own clothes?

1. No difficulty at all
2. A little difficulty
3. Moderate difficulty
4. Extreme difficulty
5. Stopped doing this because of your eyesight
6. Stopped doing this for other reasons/ not interested in doing this

13. Because of your eyesight, how much difficulty do you have visiting with people in their homes, at parties, or in restaurants?
    1. No difficulty at all
    2. A little difficulty
    3. Moderate difficulty
    4. Extreme difficulty
    5. Stopped doing this because of your eyesight
    6. Stopped doing this for other reasons/ not interested in doing this
14. Because of your eyesight, how much difficulty do you have going out to see movies, plays, or sports events?
    1. No difficulty at all
    2. A little difficulty
    3. Moderate difficulty
    4. Extreme difficulty
    5. Stopped doing this because of your eyesight
    6. Stopped doing this for other reasons/ not interested in doing this
15. Are you currently driving, at least once in a while?
    1. Yes----- *Skip To Q 15c*
    2. No

15a. IF NO: Have you never driven a car or have you given up driving?

1. Never drove ----- *Skip To Part 3, Q 17*
2. Gave up

15b. IF YOU GAVE UP DRIVING: Was that mainly because of your eyesight, mainly for some other reason, or because of both your eyesight and other reasons?

1. Mainly eyesight..... *Skip To Part 3, Q 17*
2. Mainly other reasons..... *Skip To Part 3, Q 17*
3. Both eyesight and other reasons ... *Skip To Part 3, Q 17*

15c. IF CURRENTLY DRIVING: How much difficulty do you have driving during the daytime in familiar places? Would you say you have:

1. No difficulty at all
2. A little difficulty
3. Moderate difficulty
4. Extreme difficulty

16. How much difficulty do you have driving at night? Would you say you have:

1. No difficulty at all
2. A little difficulty
3. Moderate difficulty
4. Extreme difficulty
5. Have you stopped doing this because of your eyesight
6. Have you stopped doing this for other reasons/ are you not interested in doing this

16A. How much difficulty do you have driving in difficult conditions, such as in bad weather, during rush hour, on the freeway, or in city traffic? Would you say you have?

1. No difficulty at all
2. A little difficulty
3. Moderate difficulty
4. Extreme difficulty
5. Have you stopped doing this because of your eyesight
6. Have you stopped doing this for other reasons/ are you not interested in doing this

PART 3: RESPONSES TO VISION PROBLEMS

The next questions are about how things you do may be affected by your vision. For each one, please choose the number to indicate whether for you the statement is true for you all, most, some, a little, or none of the time.

CATEGORIES	All of the time	Most of the time	A little of the time	Some of the time	None of the time
17. Do you accomplish less than you would like because of your vision?	1	2	3	4	5
18. Are you limited in how long you can work or do other activities because of your vision?	1	2	3	4	5
19. How much does pain or discomfort in or around your eyes, for example, burning, itching, or aching, keep you from doing what you'd like to be doing?	1	2	3	4	5

PART 4: WELL-BEING/DISTRESS and DEPENDENCY

For each of the following statements, please choose the number to indicate whether for you the statement is definitely true, mostly true, mostly false, or definitely false for you or you are not sure.

	Definitely True	Mostly True	Not Sure	Mostly False	Definitely False
20. I stay home most of the time because of my eyesight	*1*	*2*	*3*	*4*	*5*
21. I feel frustrated a lot of the time because of my eyesight	*1*	*2*	*3*	*4*	*5*
22. I have much less control over what I do, because of my eyesight.	*1*	*2*	*3*	*4*	*5*
23. Because of my eyesight, I have to rely too much on what other people tell me	*1*	*2*	*3*	*4*	*5*

24. I need a lot of help from others because of my eyesight	*1*	*2*	*3*	*4*	*5*
25. I worry about doing things that will embarrass myself or others, because of my eyesight	*1*	*2*	*3*	*4*	*5*

Annex 5 Amharic version of questionnaire

የ አ ማር ኛ መጠይ ቅ ቅ ጽ

መለ ያ ቁ ጥር ----------

ጤና ይስ ጥል ኝ እ ኔ .....እ ባ ላ ለ ሁ፡ ፡ የ መጣ ሁት ከ ጎ ን ደ ር ዩ ኒ ቨ ር ስ ቲ ነ ዉ፡ ፡ ከ እ ይታ መቀ ነ ስ እ ና አ ይነ -ስ ውር ነ ት ጋ ር የ ሚኖ ሩ ሰ ዎች የ ሚ ጥ ሙ ዉን የ ህ ይወት አ ኗ ኗ ር የ ጥራ ት ደ ረ ጃ እ ና ተ ያ ያ ዥ ም ክ ን ያ ቶ ች በ ሚደ ር ገ ዉ ጥ ና ት ና ም ር ም ር አ ባ ል ነ ኝ፡ ፡ በ ጎ ን ደ ር ዩ ኒ ቨ ር ስ ቲ ሆ ስ ፒ ታ ል የ አ ይን ህ ክ ም ና ክ ፍ ል የ መ ጡ ከ እ ይታ መቀ ነ ስ እ ና አ ይነ -ስ ውር ነ ት ጋ ር የ ሚኖ ሩ ሰ ዎች የ ሚ ጥ ሙ ዉን የ ህ ይወት አ ኗ ኗ ር የ ጥራ ት ደ ረ ጃ እ ና ተ ያ ያ ዥ ም ክ ን ያ ቶ ች ዙ ሪ ያ የ ዳ ሰ ሳ ጥ ና ት እ ያ ደ ረ ግ ኩ ነ ዉ፡ ፡ ለ ሁ ሉ ም ጥ ያ ቄ ዎ ች የ ሚ ሰ ጡ ን ት ክ ክ ለ ኛ መ ል ስ ለ ማ ጠ ና ዉ ጥ ና ት በ ጣ ም ጠ ቃ ሚ ነ ዉ፡ ፡ የ ር ስ ዎ መ ረ ጃ ም ስ ጢ ሩ የ ተ ጠ በ ቀ ነ ዉ፡ ፡ በ ጥ ና ቱ ላ ይ አ ሁ ን ም ሆ ነ መ ሀ ል ላ ይ መ ሳ ተ ፍ ባ ይ ፈ ል ጉ ሙ ከ ት ዎ ነ ዉ፡ ፡ ነ ገ ር ግ ን ጥ ና ቱ ከ ሚ ሰ ጠ ዉ ጥ ቅ ም አ ን ፃ ር እ ን ዲ ሳ ተ ፉ እ ን መ ክ ራ ለ ን፡ ፡ መ ጠ ይ ቁ ን ለ ማ ጠ ና ቀ ቅ 20 ደ ቂ ቃ ይ ወ ስ ዳ ል፡ ፡

አ መ ስ ግ ና ለ ሁ፤ ከ ዚ ህ በ መ ቀ ጠ ል ለ መ ሳ ተ ፍ ፈ ቃ ደ ኝ ነ ት ዎ ን የ ማ ረ ጋ ገ ጫ ዉ ፍ አ ነ ብ ሎ ታ ለ ሁ፡ ፡

ለ መ ቀ ጠ ል ይ ስ ማ ማ ሉ?

ከ ተ ስ ማ ሙ አ መ ሰ ግ ና ለ ሁ፡ ፡ መ ጠ ይ ቁ ይ ቀ ጥ ላ ል

ካ ል ተ ስ ማ ማ ም አ መ ስ ግ ነ ህ ወ ደ ቀ ጣ ዩ ተ ሳ ታ ፊ ሂ ድ

ማ ን ኛ ዉ ም ሊ ያ ነ ሱ የ ሚ ፈ ል ጉ ት ጥ ያ ቄ ካ ለ ዎ ት ተ መ ራ ማ ሪ ዎ ቹ ን በ ሚ ቀ ጥ ለ ዉ አ ድ ራ ሻ ማ ነ ጋ ገ ር ይ ች ላ ሉ፡ ፡

ስ ም፡ ቤ ተ ል ሄ ም ተ መ ስ ገ ን ፤ ደ ስ ታ ዬ ሽ ፈ ራ ዉ፤ ደ ረ ጀ ሀ ይ ሉ

ስ . ቁ፡ 0985066685, 0918032216,0910046930

መ ረ ጃ ሰ ብ ሳ ቢ

ስ ም..... ፊ ር ማ.....

ቀ ን .....

ያ ረ ጋ ገ ጠ ዉ ተ ቆ ጣ ሪ

ስ ም..... ፊ ር ማ.....

ቀ ን .....

ክፍል 1: የ ምር ምሩ ተሳ ታፊ ዎች ን ስ ነ ህ ዝ ባ ዊ እ ና ማህ በ ራ ዊ ሁ ኔ ታ የ ሚያ ስ ስ ጣ ይ ቅ

ተ.ቁ	ጥ ያ ቄ	መ ል ስ
1	ዕ ድ ሜ	_____ ዓ መ ት
2	ፆ ታ	1. ወ ን ድ 2. ሴ ት
3	አ ድ ራ ሻ	1. ከ ተ ማ 2. ገ ጠ ር
4	ብ ሄ ር	1. አ ማ ራ 2. ኦ ሮ ሞ 3. ት ግ ሬ 4. ሌ ላ(ይ ጠ ቀ ስ)---------
5	የ ጋ ብ ቻ ሁ ኔ ታ	1. ያ ላ ገ ባ 2. ያ ገ ባ 3. የ ፈ ታ 4. የ ት ዳ ር አ ጋ ሩ የ ሞ ተ በ ት
6	ሃ ይ ማ ኖ ት	1. ክ ር ስ ት ያ ን 2. ሙ ስ ሊ ም
7	የ ት ም ህ ር ት ደ ረ ጃ	1. ማ ን በ ብ እ ና መ ፃ ፍ የ ማ ይ ች ል 2. ማ ን በ ብ እ ና መ ፃ ፍ የ ሚ ች ል 3. 1 – 8 ኛ ክ ፍ ል 4. 9 – 12 ኛ ክ ፍ ል 5. ኮ ሌ ጅ/ዩ ኒ ቨ ር ስ ቲ
8	ስ ራ	1. ተ ማ ሪ 2. የ ቤ ት እ መ ቤ ት 3. ነ ጋ ዴ 4. የ ቀ ን ሰ ራ ተ ኛ 5. ገ በ ሬ 6. የመ ን ግ ስ ት ሰ ራ ተ ኛ 7. ጡ ረ ተ ኛ 8. ሌ ላ ---------
9	ወ ር ሃ ዊ ገ ቢ	_____የ ኢ ት ዮ ጲ ያ ብ ር

ክፍል 3፡ ከእይታ መቀነስ ጋር ተያይዞየህይወት አኗኗር የጥራት ደረጃን በተመለከተ

ክፍል 1፡ አጠቃላይ ጤናን እና እይታን በተመለከተ

1. አጠቃላይ ጤናዎትን እንዴት ይገልፁታል

    1. እጅግ በጣም ጥሩ
    2. በጣም ጥሩ
    3. ጥሩ
    4. መጠነ ኛ
    5. ዝቅተኛ

2. በአሁኑ ሰአት በሁለት አይንዎት ያለዎትን እይታ እንዴት ይገልፁታል(መነፀር የሚጠቀሙ ከሆነ በመነፀር ያለዎትን እይታ)

    1. እጅግ በጣም ጥሩ
    2. በጣም ጥሩ
    3. ጥሩ
    4. መካከለኛ
    5. ዝቅተኛ
    6. ምንምነገር ማየት አልችልም

3. ምን ያህል ጊዜዎን ስለእይታዎ መቀነስ በመጨነቅ ያጠፋሉ?

    1. ምንምጊዜ አልጨነቅም
    2. ለትንሽ ጊዜ እጨነቃለሁ
    3. አልፎ አልፎ እጨነቃለሁ
    4. አብዛኛውን ጊዜ እጨነቃለሁ
    6. ሁሌምእጨነቃለሁ

4. ምን ያህል የአይን ህመም ወይም ውዝዋዜ አለብዎት ለምሳሌ እንደማቃጠል፣ ማሳከክ ወይም መወዝወዝ?

    1. ምንምችግር የለብኝም
    2. ትንሽ ችግርአለብኝ
    3. መካከለኛ ችግር አለብኝ
    4. ከፍተኛ ችግር አለብኝ
    5. በጣምከፍተኛ ችግር አለብኝ

ክፍል 2፡ የእለት ከእለት እንቅስቃሴዎችን በተመለከተ

5. ምን ያህል የማንበብ ችግር አለብዎት?
    1. ምንምአልቸገርም
    2. ዝቅተኛ ችግር
    3. መካከለኛ ችግር
    4. ከፍተኛ ችግር
    5. በእይታ መቀነስ ምክንያት ማንበብ አቁሜአለሁ
    6. በሌላ ችግር ማንበብ አቁሜአለሁ/በፊትምአላነብምነበር
6. ምን ያህል በጥራት ማየት የሚያስፈልጋቸውን ስራዎች ለምሳሌ ምግብ ማብሰል፣ ልብስ መስፋት ወይምቤት ማስተካከል ይቸገራሉ?
    1. ምንምአልቸገርም
    2. ዝቅተኛ ችግር
    3. መካከለኛ ችግር
    4. ከፍተኛ ችግር
    5. በእይታ መቀነስ ምክንያት የቤት ስራወችን መስራትአቁሜአለሁ
    6. በሌላ ችግር የቤት ስራወችን መስራትአቁሜአለሁ/በፊትምየቤት ስራወችን አልሰራምነበር
7. እይታዎ መቀነስ ምክንያት ምን ያህል እቃዎችን ለማግኘት ይቸገራሉ?
    1. ምንምአልቸገርም
    2. ዝቅተኛ ችግር
    3. መካከለኛ ችግር
    4. ከፍተኛ ችግር
    5. በእይታ መቀነስ ምክንያት እቃዎችን ማግኘት አቁሜአለሁ
    6. በሌላ ችግር እቃዎችን ማግኘት አቁሜአለሁ/በፊትምእቃዎችን አልፈልግምነበር
8. በእይታ መቀነስ ምክንያት ምን ያህል የሚያውቁአቸውን ሰወች ከርቀት ለመለየት ይቸገራሉ?
    1. ምንምአልቸገርም
    2. ዝቅተኛ ችግር
    3. መካከለኛ ችግር
    4. ከፍተኛ ችግር

5. በእይታ መቀነስ ምክንያት የማውቃቸውን ሰወች ከርቀት መለየት አቁሜአለሁ
6. በሌላ ችግር የማውቃቸውን ሰወች ከርቀት መለየት አቁሜአለሁ/ በፊትም የማውቃቸውን ሰወች ከርቀት መለየት አልችልምነበር

9. በእይታዎ መቀነስ ምክንያት ምን ያህል በምሽት ደረጃ ለመውጣት/ለመውረድ ይቸገራሉ?
    1. ምንምአልቸገርም
    2. ዝቅተኛ ችግር
    3. መካከለኛ ችግር
    4. ከፍተኛ ችግር
    5. በእይታ መቀነስ ምክንያት በምሽት ደረጃ መውጣት/መውረድ አቁሜአለሁ
    6. በሌላ ችግር በምሽት ደረጃ መውጣት/መውረድ አቁሜአለሁ/ በፊትም በምሽት ደረጃ አልወጣም/አልወርድምነበር
10. በእይታዎ መቀነስ ምክንያት ምን ያህል እየተንቀሳቀሱ በጎን ያሉ ነገሮችን ለማየት ይቸገራሉ?
    1. ምንምአልቸገርም
    2. ዝቅተኛ ችግር
    3. መካከለኛ ችግር
    4. ከፍተኛ ችግር
    5. በእይታ መቀነስ ምክንያት በጎን ያሉ ነገሮችን ማየት አቁሜአለሁ
    6. በሌላ ችግር በጎን ያሉ ነገሮችን ማየት አቁሜአለሁ/ በፊትም በጎን ያሉ ነገሮችን አላይምነበር
11. በእይታዎ መቀነስ ምክንያት ምን ያህል ለተናገሩት ነገር የሰወችን መልስ ለመረዳት ይቸገራሉ?
    1. ምንምአልቸገርም
    2. ዝቅተኛ ችግር
    3. መካከለኛ ችግር
    4. ከፍተኛ ችግር
    5. በእይታ መቀነስ ምክንያት የሰወችን መልስ መረዳት አቁሜአለሁ
    6. በሌላ ችግር የሰወችን መልስ መረዳት አቁሜአለሁ/ በፊትም የሰወችን መልስ አልረዳምነበር

12. በእይታዎ መቀነስ ምክንያት ምን ያህል የልብስዎትን ቀለምለመለየት ይቸገራሉ?

    1. ምንምአልቸገርም
    2. ዝቅተኛ ችግር
    3. መካከለኛ ችግር
    4. ከፍተኛ ችግር
    5. በእይታ መቀነስ ምክንያት የልብሴን ቀለምመለየት አቁሜአለሁ
    6. በሌላ ችግር የልብሴን ቀለም መለየት አቁሜአለሁ/ በፊትም የልብሴን ቀለም አልለይምነበር

13. በእይታዎ መቀነስ ምክንያት ምን ያህል ሰወችን ቤታቸውወይምሌላ ቦታ ሄደውመጠየቅ ይቸገራሉ?

    1. ምንምአልቸገርም
    2. ዝቅተኛ ችግር
    3. መካከለኛ ችግር
    4. ከፍተኛ ችግር
    5. በእይታ መቀነስ ምክንያት ሰወችን ቤታቸው ወይም ሌላ ቦታ ሄጄ መጠየቅአቁሜአለሁ
    6. በሌላ ችግር ሰወችን ቤታቸው ወይም ሌላ ቦታ ሄጄ መጠየቅ አቁሜአለሁ/ በፊትምሰወችን ቤታቸውወይምሌላ ቦታ ሄጄአልጠይቅምነበር

14. በእይታዎ መቀነስ ምክንያት ምን ያህል ከቤት ውጪ ለመዝናናት ወይም ስፖርታዊ ክንዋኔዎችን ለማድረግ ይቸገራሉ?

    1. ምንምአልቸገርም
    2. ዝቅተኛ ችግር
    3. መካከለኛ ችግር
    4. ከፍተኛ ችግር
    5. በእይታ መቀነስ ምክንያት ከቤት ውጪ መዝናናት ወይም ስፖርታዊ ክንዋኔዎችን ማድረግ አቁሜአለሁ
    6. በሌላ ችግር ከቤት ውጪ መዝናናት ወይም ስፖርታዊ ክንዋኔዎችን ማድረግ አቁሜአለሁ/ በፊትም ከቤት ውጪ አልዝናናም ወይም ስፖርታዊ ክንዋኔዎችን አላደርግምነበር

15. አሁን ወይምከዚህ በፊት መኪና አሽከርክረውያውቃሉ?

    1. አውቃለሁ----- ወደ ጥያቄ 15ሐ ሂድ 2. አላውቅም

15ሀ. የተራ ቁጥር 15 መልስ አላውቅም ከሆነ፣ ከዚህ በፊት ሚኪና ነድተው አያውቁም ወይስ መንዳት አቁመውነው?

1. ነድቼ አላውቅም ---------- ወደ ጥያቄ *17ሂድ* *2.* መንዳት አቁሜአለሁ

15ለ. የተራ ቁጥር 15ሀ መልስ አቁሜአለሁ ከሆነ፣ ለምን?

1. በእይታ መቀነስ ምክንያት --------- ወደ ጥያቄ *17ሂድ*
2. በሌላ ችግር ምክንያት ----------ወደ ጥያቄ *17ሂድ*
3. በሁለቱም ምክንያት ---------- ወደ ጥያቄ *17ሂድ*

15ሐ. የተራ ቁጥር 15 መልስ አውቃለሁ ከሆነ፣ በቀን በሚያውቁት አካባቢ ሚኪና ሲነዱ ምን ያህል ይቸገራሉ?

1. ምንምአልቸገርም
2. ዝቅተኛ ችግር
3. መካከለኛ ችግር
4. ከፍተኛ ችግር

16. በምሽት ሚኪና ሲነዱ ምን ያህል ይቸገራሉ?

1. ምንምአልቸገርም
2. ዝቅተኛ ችግር
3. መካከለኛ ችግር
4. ከፍተኛ ችግር
5. በእይታ መቀነስ ምክንያት በምሽት ሚኪና መንዳት አቁሜአለሁ
6. በሌላ ችግር በምሽት ሚኪና መንዳት አቁሜአለሁ/ በፊትም በምሽት ሚኪና አልነዳምነበር

16ሀ. በአስቸጋሪ ሁኔታዎች ውስጥ ለምሳሌ በአስቸጋሪ የአየር ንብረት፣ በቸኮሉ ጊዜ ወይም በተጨናነቀ መንገድ ሚኪና ሲያሽከረክሩ ምን ያህል ይቸገራሉ?

1. ምንምአልቸገርም
2. ዝቅተኛችግር
3. መካከለኛችግር
4. ከፍተኛችግር
5. በእይታ መቀነስ ምክንያት በአስቸጋሪ ሁኔታዎች ውስጥ ሚኪና መንዳት አቁሜአለሁ
6. በሌላ ችግር በአስቸጋሪ ሁኔታዎች ውስጥ ሚኪና መንዳት አቁሜአለሁ/በፊትም በአስቸጋሪ ሁኔታዎች ውስጥ ሚኪና አልነዳምነበር

ክፍል 3፡ የእይታ ችግር ተፅእኖን በተመለከተ

ጥያቄ	ሁልጊዜ	በአብዛኛው	አንዳንዴ	አልፎ አልፎ	ምንም ጊዜ
17.በእይታ መቀነስ ምክንያት መስራት የፈለጉትን ነገር ካሰቡት ወይም ከፈለጉት በታች ይፈፅማሉ?	1	2	3	4	5
18. በእይታ መቀነስ ምክንያት የስራዎን ወይምየሌላ ክንውኖችን ሰአት ይቀንሳሉ?	1	2	3	4	5
19. የአይንዎት ህመም ወይም ስቃይ ለምሳሌ ማቃጠሉ፣ ማሳከኩ ወይም መወዝወዙ የፈለጉትን ስራ እንዳይሰሩ አድርጎዎታል?	1	2	3	4	5

ከፍል 4፡ ደህንነት፣ መጨፍነቅ እና ጥገኝነትን በተመለከተ

ጥያቄ	በእርግጠኝነት እውነት	በአብዛኛው እውነት	እርግጠኛ አይደለሁም	በአብዛኛው ሀሰት	በእርግጠኝነት ሀሰት
20. በእይታ መቀነስ ምክንያት ብዙ ጊዜ ቤት ውስጥ ይውላሉ፡ ፡	*1*	*2*	*3*	*4*	*5*
21. በእይታ መቀነስ ምክንያት ብዙ ጊዜ መናደድ፣ ተስፋ መቁረጥ ስሜት ይሰማዎታል፡ ፡	*1*	*2*	*3*	*4*	*5*
22. በእይታ መቀነስ ምክንያት ስራዎትን መቆጣጠር እይችሉም፡ ፡	*1*	*2*	*3*	*4*	*5*
23. በእይታ መቀነስ ምክንያት ሌሎች ሰወች በሚሰማሩዎት ነገር ላይ የተማመናሉ፡ ፡	*1*	*2*	*3*	*4*	*5*
24. በእይታ መቀነስ ምክንያት ከሌሎች ሰወች ብዙ እርዳታ ይፈልጋሉ፡ ፡	*1*	*2*	*3*	*4*	*5*
25. በእይታ መቀነስ ምክንያት እርስዎንም ሆነ ሌላ ሰወችን የሚያሳፍር ስራ እንዳይሰሩይጨነቃሉ፡ ፡	*1*	*2*	*3*	*4*	*5*

Annex 6. Declaration

I, the undersigned, senior clinical optometry student declare that this thesis is my original work in partial fulfillment of the requirement for the degree of Master of clinical optometry.

Name: Betelhem Temesgen

Signature: ----------

Place of submission: University of Gondar, College of Medicine and Health Sciences, Department of Optometry

Date of Submission: ----------

This thesis result work has been submitted for examination with our approval as university advisor(s).

Advisors

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Mr. Destaye Shiferaw ----------

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